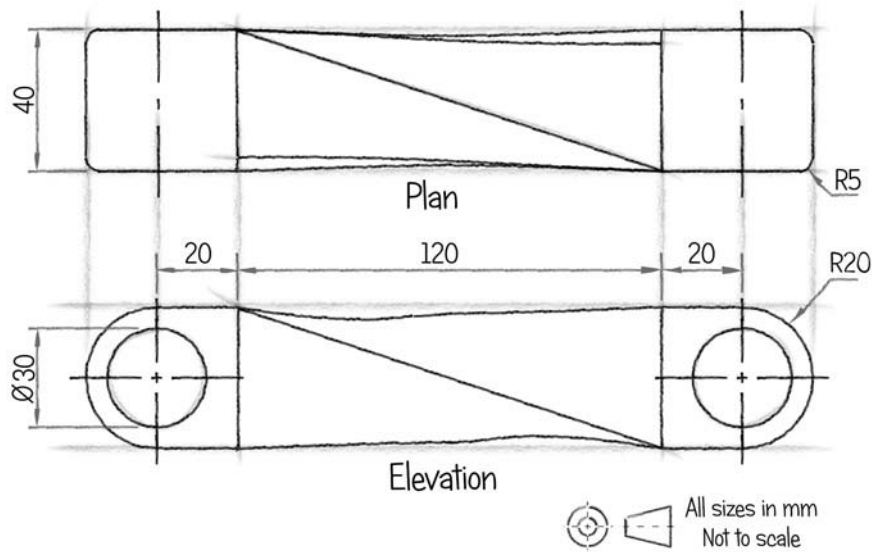


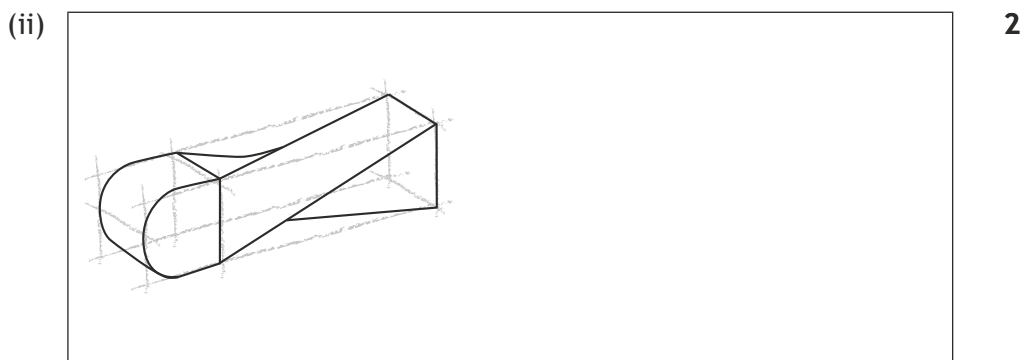
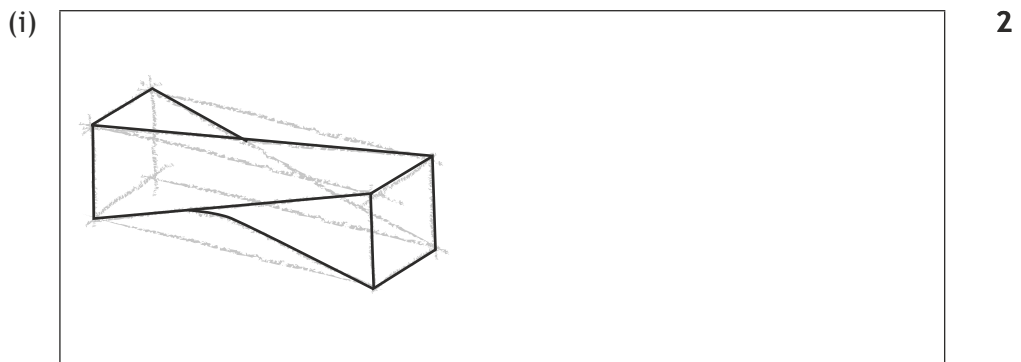
2. The sketches below were used by a CAD technician to create a 3D model of a portable speaker casing. The 3D model will be used to make production drawings and a promotional illustration.



**Orthographic sketch**

The CAD technician sketched a modelling plan before creating the 3D model. The first two stages of the modelling plan are shown below.

- (a) Describe the 3D modelling techniques proposed for each stage, making reference to all relevant dimensions from the orthographic sketch. You can sketch, annotate the sketches provided and/or use text in your answer.



2. (continued)

Solid model of the portable speaker casing



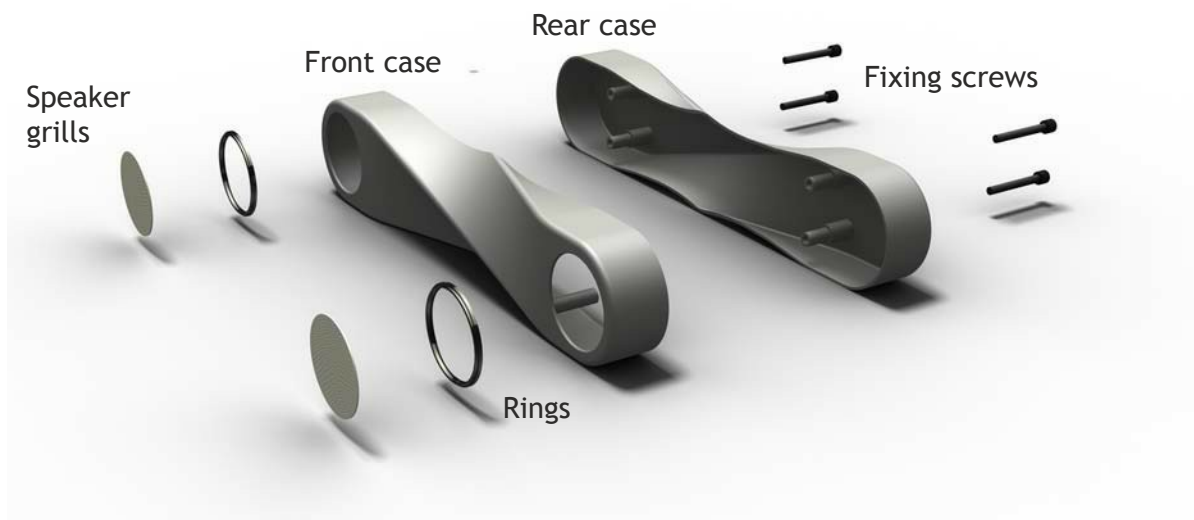
Component parts of the portable speaker casing

A solid model of the portable speaker casing and the two components generated from it are shown above.

- (b) Describe, using a “top-down” approach, the techniques used to create the two component parts from the solid model. You can sketch, annotate and/or use text in your answer.

4

2. (continued)



The components of the speaker casing are shown above.  
The fixing screws were imported from a CAD library.

(c) Explain why this type of component would be included in a CAD library. 2

2. (continued)

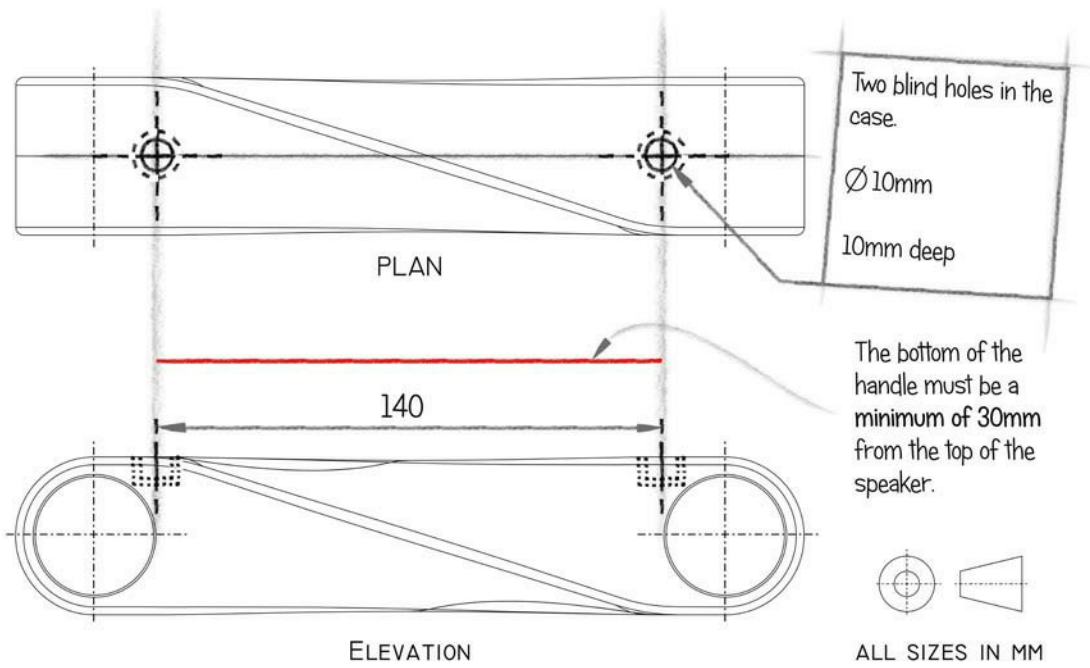


The two component parts of the portable speaker casing need to be assembled within the CAD software.

- (d) Outline the 3D modelling techniques used to fully constrain the two component parts. You may use annotated sketches to support your answer if you wish.

2

2. (continued)



2. (continued)

The portable speaker casing design has been modified to allow a simple handle to be attached. These modifications have been sketched on the production drawings and shown on the 3D model on the left.

- (e) Produce a modelling plan which could be used to create a 3D CAD model of a simple handle to fit the blind holes in the casing. The handle will be glued into the holes. You can sketch, annotate, and/or use text in your answer.

4

